

Enhancing User Experiences: A Technical Exploration of Website Redesign

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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ABSTRACT

The website for a Houston-based government subcontractor specializing in aerospace research and design had an outdated design and poor user experience, resulting in customer complaints and low engagement. To redesign the website, I utilized HTML, CSS, JavaScript, Python, Django, and Wagtail. Research was conducted to determine what features needed to be redesigned and wireframes were created using that information. The website will be updated by referencing the approved wireframes. This will improve user experience and increase website traffic. Users of the website should be surveyed to determine if the website design has resulted in an improved user experience.

1. INTRODUCTION

The digital face of any organization serves as an important gateway to engage, inform, and leave a lasting impression on its audience. However, for this website, there was a pressing need for a comprehensive overhaul. The existing design exhibited a range of issues, prompting a strategic initiative to revitalize its visual appeal, functionality, and overall user experience.

The overarching concerns spanned the entire website, from a call for a new font and an infusion of more captivating visuals to a desire for dynamic animations and moving elements. The challenge was not solely about infusing energy into the platform, but also

about addressing accessibility concerns for the proposed dynamic features. On the homepage, the emphasis was on achieving a more engaging aesthetic, drawing inspiration from industry leaders like KBR or Peraton. This involved striking a delicate balance between content richness, reminiscent of Boeing or NASA, and incorporating subtle yet impactful movement.

The About page was designated for a facelift, aiming to incorporate additional employee profiles and streamline the layout for a more polished presentation. Meanwhile, the Projects page aimed for enhanced user interaction, as it was a page with many paragraphs of information. Lastly, the Contact Us page faced a fundamental restructuring, with the suggestion to either integrate contact information into the footer across all pages or introduce a dedicated "Contact Us" link for streamlined access. Navigating the multifaceted challenges encountered in the redesign process involves documenting the strategic decisions and technical solutions implemented to transform a lackluster digital presence into a dynamic and user-centric platform.

2. RELATED WORKS

In the process to envision the redesigned website, a comprehensive analysis of partner companies' websites played a central role. Careful scrutiny was given to the online presences of industry giants such as KBR, Peraton, Boeing, and NASA. Each of these

websites was examined to extract unique features and design elements that could contribute to the development of a distinctive and effective final design. By assimilating the best practices and standout characteristics from these industry leaders, the aim was to ensure that the revamped website not only met but exceeded contemporary standards, offering users a visually appealing and functionally robust experience.

KBR, Inc., a prominent U.S.-based company, operates at the forefront of science, technology, and engineering across diverse markets, including aerospace, defense, industrial, and intelligence (KBR, n.d.). Similarly, Peraton Inc. stands as an American national security and technology company, offering a comprehensive array of services in space, intelligence, cyber, defense, homeland security, citizen security, and health (Peraton, 2023). Notably, both companies boast exceptionally dynamic websites characterized by engaging animations and rich content, contributing to an enthralling user experience. Drawing inspiration from the innovative approaches of KBR, Inc. and Peraton Inc., the redesigned website aims to emulate their dynamism, ensuring an exciting and immersive experience for users.

As an American multinational corporation specializing in the design, manufacturing, and global distribution of airplanes, rotorcraft, rockets, satellites, telecommunications equipment, and missiles, The Boeing Company stands as a prominent player in the aerospace industry (Boeing, n.d.). Meanwhile, the National Aeronautics and Space Administration (NASA), an independent agency of the U.S. federal government, holds responsibility for overseeing the civil space program, aeronautics research, and space exploration (NASA, n.d.). Noteworthy are the dynamic websites of both entities, featuring numerous photographs, infographics, and up-to-date news about their respective enterprises. This

compelling approach served as inspiration, prompting the incorporation of more photographs and current news updates as integral elements in the ongoing website redesign initiative.

3. PROJECT DESIGN

The website redesign process consisted of four steps. Drafting the project charter set the stage for a well-organized effort, aligning the redesign with the company's strategic goals. The requirements elicitation process involved engaging diverse stakeholders, including the internal Website Redesign team and broader employee perspectives, ensuring a holistic understanding of needs and preferences. Detailed wireframes served as a visual guide, translating abstract requirements into a concrete design plan, fostering a collaborative and efficient web redesign effort. The hands-on coding phase, utilizing a robust tech stack, marked the transition from planning to implementation, highlighting technical proficiency in creating a responsive and feature-rich website.

3.1 Project Charter

Drafting a project charter was the first step in the web redesign process. The project charter served as the foundational document that outlined the purpose, scope, objectives, and key stakeholders of the website redesign project. In collaboration with the project team and under the guidance of senior professionals, I detailed the project's goals and deliverables, setting the stage for a clear and shared understanding among all stakeholders. The project charter also defined the roles and responsibilities of team members, established the project timeline, and identified potential risks. This document played a crucial role in aligning the project with the company's strategic objectives, providing a roadmap for the entire web redesign process. By carefully drafting the project charter, I laid the groundwork for a

well-organized and coordinated effort to achieve a successful and impactful website redesign.

3.2 Requirements Elicitation

The process of requirements elicitation involves gathering, documenting, and understanding the needs and expectations of stakeholders to ensure a successful project. To start, I discussed issues with the website with the internal Website Redesign team, surveyed employees, and recorded my own thoughts of improvement on the website. The Web Redesign team included the Business Systems Manager, Communications & Community Projects Partner, two Project Managers, and me. These team members brought diverse perspectives and expertise to the table, ensuring a comprehensive understanding of the current issues with the website and the goals for improvement.

In addition to internal discussions, I extended the information-gathering process by surveying employees. This involved creating questions to be added to a survey that was sent out in an email to all employees. This step aimed to capture a broader range of perspectives and identify user-specific needs and preferences. By involving a variety of stakeholders, including both the project team and end users, I aimed to create a holistic view of the requirements for the website redesign. Furthermore, to ensure that my personal observations and insights were incorporated, I took the initiative to record my thoughts on areas that could be improved on the website. This self-reflection served as a valuable input, adding an individual perspective to the collective understanding of the project requirements.

3.3 Wireframe Creation

Wireframes were a natural next step after the requirements elicitation. Utilizing the gathered information about stakeholder needs, user preferences, and project

objectives, I embarked on the development of detailed wireframes. These visual representations served as a blueprint, illustrating the layout, structure, and functionality of the redesigned website. By translating the identified requirements into tangible design elements, the wireframes functioned as a visual guide for both the development team and stakeholders, ensuring a shared vision of the final product. This iterative process allowed for refining the user experience and interface design before the actual coding phase, saving valuable time and resources. Overall, the creation of wireframes marked a crucial step in transforming abstract requirements into a concrete design plan, fostering a more efficient and collaborative web redesign effort.

3.4 Website Coding

In the last stage of the redesign process, I transitioned from the planning phases to the hands-on implementation by coding the website. Drawing upon my expertise in Python, HTML, CSS, and JavaScript, I employed a robust tech stack that included Django and Wagtail to bring the envisioned design to life. The wireframes crafted during the earlier stages served as the guiding blueprint for the coding process. By referencing these wireframes, I ensured that the website's structure, layout, and functionalities closely aligned with the established design principles and user experience objectives. The use of Django and Wagtail facilitated a dynamic and efficient development process, enabling the creation of a responsive and feature-rich website tailored to the unique needs of the company. This hands-on coding experience not only highlighted my technical proficiency but also translated the collaborative efforts from planning and elicitation phases into a tangible, functional website for the organization.

4. ANTICIPATED RESULTS

The anticipated results of the website redesign endeavor are multifaceted, encompassing both quantitative and qualitative improvements in the overall digital presence and user experience. With the implementation of a new font, increased visual elements, and dynamic animations, the redesigned website aims to capture and retain user attention more effectively. The incorporation of features inspired by industry leaders such as KBR, Peraton, Boeing, and NASA anticipates a heightened level of engagement, akin to the dynamic and content-rich experiences offered by these esteemed organizations. By strategically addressing accessibility concerns associated with dynamic elements, the redesign endeavors to create an inclusive and user-friendly platform. Furthermore, the streamlined layout on the About page, interactive features on the Projects page, and a fundamental restructuring of the Contact Us page are anticipated to contribute to a more polished and user-centric interface. The user survey, a pivotal component of the post-implementation phase, is expected to provide valuable insights into the success of the redesign, helping to validate improvements in user experience and overall satisfaction. Ultimately, the anticipated results encompass a transformed digital landscape, marked by increased website traffic, positive user feedback, and a more prominent and engaging online presence within the aerospace domain.

5. CONCLUSION

The website redesign undertaken for the Houston-based government subcontractor specializing in aerospace research and design represents a critical initiative to address the shortcomings of an outdated digital presence. The multifaceted challenges identified and navigated throughout the redesign process underscore the importance of revitalizing the

website's visual appeal, functionality, and overall user experience. By leveraging a strategic combination of technologies such as HTML, CSS, JavaScript, Python, Django, and Wagtail, the project aimed not only to rectify existing issues but also to emulate the dynamic and engaging experiences offered by industry leaders like KBR, Peraton, Boeing, and NASA. The incorporation of captivating visuals, dynamic animations, and a streamlined layout reflects a commitment to creating a user-centric platform that aligns with contemporary standards and user expectations.

The significance of the project lies in its potential to elevate the digital identity of the company, fostering increased user engagement and satisfaction. Anticipated results encompass not only the quantitative metrics of heightened website traffic but also qualitative improvements in user experience and overall satisfaction. The streamlined interface on the About page, interactive elements on the Projects page, and a restructured Contact Us page are poised to contribute to a more polished and user-friendly website. The user survey in the post-implementation phase serves as a crucial feedback mechanism to validate the success of the redesign, ensuring that it aligns with the needs and preferences of the user community. Ultimately, the anticipated value to consumers lies in a transformed digital landscape that not only rectifies existing issues but positions the organization as a prominent and engaging presence within the aerospace domain.

6. FUTURE WORK

Several next steps are crucial to fully realize the project's potential and ensure its sustained success. Firstly, a comprehensive user testing phase should be implemented, involving a diverse group of potential users to gather real-time feedback on the redesigned features, functionality, and overall user

experience. This iterative testing process will provide valuable insights into any unforeseen issues and allow for refinement before the official launch. Additionally, continuous monitoring and analytics tools should be integrated to track user engagement, website traffic, and other relevant metrics post-launch, enabling data-driven adjustments and optimizations.

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